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PAPERS IN CONNECTION WITH THE BUBONIC PLAGUE.

Notification, dated 17th February 1899.

It is hereby notified for the information of the public that the Senior Surgeon and Sanitary Commissioner with the Government of Mysore has authorized Sub-Assistant Surgeon Mr. G. David of Seringapatam to inoculate and to grant certificates of inoculation.

Dated 2nd March 1899.

It is hereby notified for the information of the public that the Senior Surgeon and Sanitary Commissioner with the Government of Mysore has authorized M. Perumal Naidu, 1st Class Hospital Assistant at Channapatna, to inoculate and grant certificates of inoculation within his jurisdiction.

Extract from the Diary of the District Plague Officer, Bangalore, for week ending 24th February 1899.

* * * * * *

Closepet still presents the same deserted appearance. Since my last visit, some 3 or 4 weeks ago, there have only been 3 deaths, which clearly shows the advantage of early evacuation. This town with its population of over 6,000 persons was evacuated in 2 days, and only some 20 deaths occurred. In other much smaller towns in which the evacuation was not carried out with such promptitude, and in which the people showed a disinclination to move, the death rate ran well into the hundreds, *vide* Dommasandra, Sarjapur, Yelahanka and many others. In towns of the same and a slightly larger size the death rate was very high, *vide* Channapatna, only 7 miles distant, where over 700 people died, and Anekal and others. If these people had moved out with the same rapidity as the Closepet people did, many lives would surely have been saved. The death rate from plague in Closepet has been smaller than that of many a little village.

This is a very striking example of the benefits of prompt evacuation, and is worthy of the consideration of the Plague Commissioner.

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Extract from the Kolar District Deputy Commissioner's memo dated nil.

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From the information I could gather from the different officers including Mr. Lavelle, there appears to be no scare amongst the coolies although many appear to have left the Mysore Mine, which is working very short-handed; the Champion Reefs Mine has also lost a good many coolies.

Dr. Krishnaswami Iyer informed me that he did not consider that plague had got a strong hold upon the fields and that with the present staff he was in hopes of stamping it out.

* * * * * *

WEEKLY REPORT OF PLAGUE IN THE MYSORE STATE, EXCLUDING THE CIVIL AND MILITARY STATION, FOR THE WEEK ENDING 24TH FEBRUARY 1899.

Bangalore City.

I. The following are the figures in the City up to date:—

	Plague cases.	Plague deaths.	Deaths from all causes.	Normal recorded mortality in the same period.
From 12th August 1898 to 27th January 1899 ..	3,318	2,641	6,944	585
Week ending 3rd February 1899	6	7	39	27
Week ending 10th February 1899	5	2	35	32
Week ending 17th February 1899	1	1	27	32
Week ending 24th February 1899	1	Nil	31	32

The gradual decrease of the disease, noticed in the previous weeks, was well maintained during the week under report, and there were neither attacks nor deaths during 6 out of the 7 days of the week, although arrivals in the City were 1,852 as against 1,590 during the previous week.

II. The figures for the Health and Segregation Camps were as follows:—

	Remaining.	Admitted.	Discharged.	Developed plague.	Remaining.
Health Camps ..	374	60	122	..	312
Segregation Camp ..	7	..	7	..	..

It is noteworthy that in the Segregation Camp there were no contacts at the end of the week.

III. During the week there were 559 first inoculations and no second inoculations, bringing the totals to 31,158 and 1,356, respectively. One moculated person was attacked with plague during the week. The total number of such persons attacked since the outbreak is 231, of which the number verified is 156.

IV. The Hospital figures were as follows:—

	Remaining.	Admitted.	Discharged.	Died.	Remaining.
For the week	2	1	1	..	2
Since commencement	..	2,095	740	1,353	2
Inoculates	..	105	64	40	1

V. During the week, 305 houses were disinfected as against 340 during the previous week, of which 67 were infected houses and the rest deserted ones.

VI. During the week permission was given to reoccupy 197 houses; no charge was levied for disinfecting 38 houses; 6 were disinfected by the owners themselves and the charges collected for the remaining 153 amounted to Rs. 253.

VII. The cost of works carried out during the week in the Malleswaram and Basawanagudi extensions in the north and south of the City was Rs. 2,037, bringing the total amount spent up to date to Rs. 20,711

VIII. During the week under report, 822 persons or a daily average of 117·43 were disinfected with their effects at the City Railway Station.

Mysore State, outside Bangalore.

IX. The accompanying weekly returns shows the state of the epidemic in the Province.

The districts of Shimoga, Hassan, Chitaldrug and Kadur continued free, while in each of the remaining four districts of Bangalore, Kolar, Tumkur, and Mysore the decrease in the disease was maintained.

In the Bangalore district the number of cases decreased from 135 to 115, and with the exception of Closepet and Hoskote, where there was a slight increase, and of Channapatna where there was the marked increase of 16, there was a decrease in all the taluks of this district.

The number of infected villages decreased from 55 in the past week to 53 during the present week. Fresh cases were reported from 41 as against 32 villages in the past week. Of these, 14 were newly infected villages, almost all of which are reported to have been promptly evacuated.

In the Kolar district excluding, the Gold Fields, there was a decrease, while in the Gold Fields there was an increase of 2 cases.* The number of infected villages in the Kolar district, except Gold Fields, however increased from 17 in the previous week to 20 in the present week, while in the Gold Fields the number was the same, *viz.*, 10.

In the Tumkur town there was only 1 case, while in the district there was a decrease in the number of cases and deaths and also in the number of infected villages. The epidemic was confined to the Taluk of Tumkur during the week.

In the Mysore district, exclusive of the City, there was considerable decrease in the number of plague cases and deaths though the number of villages infected was 12 as against 9. Five of these villages were evacuated.

X. In the Mysore City, the figures were as follows :—

	Plague cases.	Plague deaths.	Total mortality.
Week ending 3rd Feb. 1899.. ..	294	220	288
„ 10th Feb. „	285	231	283
„ 17th Feb. „	282	249	300
„ 24th Feb. „	264	204	255

There was an appreciable decrease in the number of plague attacks and deaths and also in the total mortality during the week, and it may therefore fairly be hoped that the decline of the epidemic in the City has actually commenced.

During the month of February Regulations were passed (1) for the more efficient working of the Supervision system (2) for the disinfection of passengers leaving the Mysore City (3) and for extending the powers conferred by Regulation 6 A, Durbar's Notification No. 723 of 23rd December 98, to towns and villages other than the Cities of Bangalore and Mysore, by which the work of Deputy Commissioners in demolishing insanitary and infected houses will be greatly facilitated.

Extract from the Diary of the District Plague Officer, Tumkur, for the week ending 17th February 1899.

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Plague in the town of Tumkur.—During the week under report there was only one attack as against 3 attacks and 3 deaths in the last week. This attack took place on the 15th after an interval of about 10 days. The patient is an inoculated person. He had a slight wound on one of his feet which seems to have brought on the attack. A constable of the District Reserve, who was living in a shed outside the town and who was in the habit of walking bare-footed, received a cut on one of his feet and contracted plague soon after, which proved fatal in course of 2 days. Another constable of the Special Reserve who was twice inoculated died under similar circumstances. People do not seem to be sufficiently aware of the danger of walking bare-footed in an infected area and should be warned to be more careful especially when they have got a wound or any other opening in their feet.

* * * * * *

Memo of the Special Plague Officer, Kolar Gold Fields, dated 4th March 1899.

I am glad to report that there have been no further attacks in the Coromandal lines these two days. Similarly the Mysore Mine Property is also free.

I spent the morning and evening inoculating arrivals and other coolies.

There were 4 cases to-day—*one* in Balaghat station premises, *one* in Ooregaum Mines, one in Steven's camp, *one* in Champion.

15 houses of Marikuppam have been valued preparatory to demolition.

Ooregaum village.—20 houses have been evacuated. Eight sheds have been demolished. 370 tenements have been ventilated. Five houses that have been condemned will be demolished in the course of a few days.

25 private huts have been erected by Mahomedans, who will remove themselves into them in a day or two.

20 tenements in Steven's lines have been condemned and will be pulled down in the course of the next week. All the buildings in this locality have been ventilated to my satisfaction.

* The figures shown in return regarding Gold Fields comprised 7 days' figures received in the present week, as against those of 5 days in the previous week.

Extract from the Diary of the Assistant Superintendent of Police, Chitaldrug district, for the week ending 25th February 1899.

* * * * *

Inspected the road frontier station at Hottiganhalli. Found the constable and the Begars present. The observation notice book maintained at the station was well kept.

Examined the registers kept by the patel of Kurlhalli and found them satisfactory. The patel is an intelligent and literate man. He knows the nature of plague and the measures to be adopted for combating it. It is gratifying to know from the patel that the villagers this side are quite prepared to evacuate their villages if the disease makes its appearance in their midst.

23rd February.—The town of Adadi is very well kept. The patel is conversant with the instructions contained in the leaflets issued by the Plague Commissioner and has maintained the register of arrivals from infected parts.

The Patel of Simoonahalli also is an intelligent man and has kept all the prescribed registers. The register of arrivals from infected parts is, as at Hadadi, a printed one. I am informed that the Amildar got the registers printed at Davangere and supplied to all the patels and police stations. The interest the Amildar is taking in plague matters is commendable.

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Extract from the Notes of Inspection of the Kolar Deputy Commissioner, dated 23rd February 1899.

* * * * *

I then came into Chintamani, inspecting the villages on the road-side and explaining matters to the villager, who all without exception recognised the necessity of at once evacuating their villages on the first appearance of plague. Chintamani, without exception, is the most congested town. I have seen the streets which are generally narrow, and on viewing the town from the house tops I found all the backyards built over with the exception of a small space here and there, which was choked up with rubbish. On conferring with the principal townspeople I pointed out to them the danger they run and they agreed to open out conservancy lanes at the expense of some of the buildings and to open windows, &c., in their houses for the admission of light and air; these measures, I am glad to say, are now being carried out as found on my recent visit to the place a few days ago. * *

From Nandi I went to Sidlaghatta, which I found wonderfully clean and neat with new whitewash; the Amildar, although newly appointed, has done wonders in cleaning up the town and getting his orders carried out and deserves the greatest credit for the pains he has taken; his villages which I inspected on the road to Chintamani were also in the same good order as also, those at the far end of his taluk, Motamakalpalli, where I encamped for some time finishing the jamabandi. The village of Chelur and surrounding villages which I inspected in the Bagepalli taluk were also neat and clean and all manure removed. On my return to Chintamani, I inspected the Hundigiri village which had been evacuated on account of plague. This was a very good sample of what evacuation can do in the way of stopping plague. Within 3 days of the first death, the whole village was evacuated, since when there were only 2 deaths of people who had probably caught it before leaving; the village has been clear of plague now for more than a month, but the villagers have no wish to re-occupy their houses yet. In the meantime, I ordered the roofs of the infected houses to be removed and holes knocked in the walls of other houses for the admission of light and air * * Throughout my tour I have found generally that the Amildars do not enact work from the shekdar; there is no doubt that they are in many cases incompetent, but I think that if the Amildars hold them responsible for their hoblis they would get better work out of them than at present. I have accordingly issued orders to Amildars to direct the shekdars to get the villages of their hoblis cleaned up and hold them responsible generally, and that should the Amildars, on inspection, find the shekdars incompetent and lazy to report them immediately.

Extract from the Kolar Plague Officer's Diary for week ending Friday, 3rd March 1899.

* * * * *

Saturday, 25th February 1899.

Checked and initialled the "register of arrivals from infected areas" kept by the Patels of Iglur, Kudyanur and Mylandhalli, and also the mortuary returns for December, January and February. At Iglur there was I one death, carbuncle, in December and no deaths in January and February. There were no deaths in Kudyanur. At Mylandhalli there was one death from plague on 17th February 1899 imported from Gongur, Hoskote taluk.

* * * * *

Friday 3rd March 1899.

* * * * *

I received information at about 7-30 last night that a Muhammadan named Hyder Sab, had come into town the day previous from Bowringpet (where he was living and was in the habit of visiting the Gold Fields) to the house of his father a nalband, named Karim Sab, and that he was suffering with fever. I immediately communicated with the Assistant Surgeon and went down to the spot with him. The Doctor examined Hydar Sab and found his temperature to be 102°. As the case was a suspicious one, the man and two women who were in contact with him, were removed to an isolated mantap not far from the Muhammadan segregation shed, and a cordon placed round the house, which was thoroughly disinfected this morning under the supervision of the Medical Officer. The adjoining house was evacuated. As this house and Karim's formed a square by themselves, and there being sufficient open space all round, the Medical Officer did not deem it necessary to order the evacuation of Karim's house, the inmates of which are under observation, a cordon around it being sufficient. Malur and Chintamani again send in a clear bill for the week.

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The Memo of Dr. E. S. Krishnaswami Iyer, dated 24th February 1899.

Administrative arrangements.—The whole of the Gold Field, mining properties included, have been divided into 2 divisions, North and South, under Mr. Sewell and Mr. Selvey. All the mining properties and all the villages North of and including Ooregum will form North Division under Mr. Sewell; the rest will form the South under Mr. Selvey. Each of these Assistant Plague Officers will have a Supervisor and two Inspectors in the employ of the Mining Board and a similar staff in the employ of Government placed under him. The Assistant Plague Officer will see every case of sickness and death as soon as it is reported and take the necessary measures. The Assistant Plague Officer will also be in charge of the sanitation of the mining properties—the surrounding villages. Pucca arrangements have been made for the conservancy of the Ooregum village, Sorkapalli, Muskam, Steven's Block and Krishnagiri lines. A number of scavengers and carts have been entertained for these places to supplement the already existing ones——During the past few days all the private huts in the Mysore Mine and Champion Reefs have been improved and ventilated to our satisfaction. We intend improving the ventilation of all the buildings in the Gold Fields area—Marikuppam Bazaars have been completely evacuated, and all but a few of the shops have been unroofed. As there is no infection at Steven's Block I intend having the insanitary tiled huts evacuated and demolished. The sheds at Krishnagiri lines, Bees Block are being improved to our satisfaction. The evacuation of Ooregum village has to be carried out circumspectly. The permanent residents can be sent out to the fields, but the mining coolies have to be taken out in batches to the health camps and thence transferred to the Mining Board properties under a system of escort. There is danger of these men scattering the infection * * I have inoculated 200 persons already and hope to do at least 500 at least a week.

The Deputy Commissioner was here yesterday and looked into the arrangements. He was also anxious to have Ooregum evacuated. If Ooregum were a village occupied by raiyats, I would get evacuation done immediately. Such classes of men do not run away and spread the infection. However in the course of another 10 days I will get the insanitary portions completely evacuated.

Extract from the Diary of the Additional Assistant Superintendent of Police, Bangalore district, for the week ending 25th February 1899.

* * * * *

24th Friday :—

Visited the marginally noted villages in the Kankanhalli taluk. The sanitation was highly satisfactory. The villagers know exactly what plague is and what they ought to do on its appearance.

1. Kurubarpete.
2. Arlahal.
3. Baikuppe.
4. Kotegandandoddi.
5. Ianmandoddi.
6. Virupasamudra.
7. Mallegal.
8. Devegandandoddi.

Amildar Mr. Kantiravachar seems to have taken great pains in this direction.

The town of Kankanhalli is remarkably clean.

Statement of Houses Demolished in the Bangalore City and compensation paid.

Period.	Number of houses demolished.	Houses for which compensation was paid.		Balance of compensation to be paid.	Remarks.
		No.	Amount.		
			Rs. a. p.	Rs. a. p.	
During the week ending 24th February 1899 ...	17	3	140 0 0	.....	
Do 17th February 1899.	15	5	195 0 0	.....	The greatest number consisted of houses either in ruins or of very inferior kind, coming under the category of huts or sheds. The owners in most cases being absent, no settlement could be effected.
From commencement up to the 10th February 1899 ...	368	25	1,202 12 10	.....	
Total ...	400	33	1,537 12 10	.....	

Statement showing the number of Houses Disinfected in the Bangalore City.

Week ending—	Number of houses disinfected.
24th February 1899	305
17th do 1899	340
From the commencement up to 10th February 1899	4,381
Total ..	5,026

Statement showing the number of persons disinfected with their effects at the Bangalore City Railway Station.

Week ending.	No. of Males.	No. of Females.	Total.	Remarks
17th February 1899 ...	835	134	969	
(Daily average) ...	119·28	19·14	138·43	
24th February 1899 ...	636	186	822	
(Daily average) ...	90·86	26·57	117·43	

Weekly Return of persons inoculated in the Mysore State.

Name of place.	No. of 1st inoculations during the week ending 24th February 1899.	No. of 2nd inoculations during the week ending 24th February 1899.	Total.	Total No. of 1st inoculations up to the 24th Feb. 1899.	Total No. of 2nd inoculations up to the 24th Feb. 1899.	Grand Total.
Bangalore City ...	559	...	559	31,158	1,356	32,514
Mysore City ..	82	5	87	29,666	89	29,755
Bangalore District ..	534	...	534	8,953	...	8,953
Bowringpet Taluk including Kolar Gold Fields ...	302	...	302	3,052	4	3,056
Kolar District (except Bowringpet Taluk ...	226	...	226	*3,871	1	3,872
Tumkur District ..	174	...	174	3,112	...	3,112
Mysore do ...	...	...	...	1,683	5	1,688
Hassan do ...	...	...	...	325	...	325
Shimoga do ...	6	...	6	244	2	246
Kadur do ...	29	1	0	322	11	333
Chitaldrug do ...	7	...	7	30	...	3

Comparative Statement showing the number of Infected Villages in each District during the weeks ending 17th and 24th February 1899.

Districts.	Infected Villages.	
	During the week ending 24th February 1899.	During the week ending 17th February 1899.
Bangalore	41	31
Kolar	21	18
Tumkur	7	7
Mysore	10	7
Hassan	...	...
Shimoga	...	...
Kadur	...	...
Chitaldrug	...	...
Total ...	79	63

Statement showing the total number of Persons in the Health Camps, Bangalore City, for the week ending Friday the 24th February 1899.

Health Camps.	No. remaining on Friday, the 17th February 1899.	No. admitted during the week ending Friday, the 24th February 1899.	No. of persons discharged during the week ending Friday, the 24th February 1899.	No. of persons segregated.	No. remaining on Friday, the 24th Feb. 1899.
Lal-Bagh Road Police Lines,	59	...	59	..	...
Makan	....	...	...	...	...
Upparahalli Health Camp.	125	1	18	...	108
Yedur, Mysore Road and Guttahalli,	190	59	45	...	240
Total ...	374	60	122	...	312

Statement showing Plague Cases and Deaths (imported as well as indigenous) in the Mysore Province, reported in daily returns to the Plague Commissioner from 12th August 1898 to week ending Friday the 24th February 1899.

Period.	1				2				3				4				5			
	Bangalore.				Mysore City.				Bangalore District.				Kolar District.				Tumkur District.			
	City.		Cantonment.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.	
	Cases.	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths
During the week ending Friday, the 24th February 1899.	1	..	6	6	...	...	263	213	...	...	115	110	7	5	†85	45	...	...	15	11
During the week ending Friday, the 17th February 1899.	1	1	10	10	...	...	268	231	...	...	135	117	2	1	62	50	1	1	20	24
Total since the first appearance of Plague, *i. e.*, from 12th August 1898 up to 10th February 1899.	3,329	2,650	3,078	3,277	14	12	*1,172	886	230	185	4,116	3,736	135	114	721	655	115	88	772	575
Total ...	3,331	2,651	3,994	3,293	14	12	1,703	1,330	230	185	4,366	3,963	144	120	848	750	116	89	807	610

Period.	6				7				8				9				10				11	
	Mysore District.				Hassan District.				Shimoga District.				Kadur District.				Chitaldrug District.				Total.	
	Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.		Imported.		Indigenous.			
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases.	Deaths.
During the week ending Friday, the 24th February 1899.	2	1	31	21	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	505	412
During the week enidng Friday, the 17th February 1899.	...	...	65	52	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	564	487
Total since the first appearance of Plague, *i. e.*, from 12th August 1898 up to 10th February 1899.	29	21	211	171	2	1	...	...	...	...	...	...	6	5	...	..	6	4	...	..	*14,836	12,380
Total ...	31	22	307	244	2	1	...	...	...	...	...	...	6	5	...	...	6	4	...	...	15,805	13,279

* Revised figures as per Chief Plague Officer's letters, dated 4th and 20th February 1899.

† This includes 8 days' figures, except for Bowringpet taluk including Gold Fields.

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Supplementary Statement showing in detail the places in the Mofussil where Plague Cases and Deaths were reported in daily returns to the Plague Commissioner during the week ending Friday the 24th February 1899.

Population in 1891.	Places.	During the week ending 24th February 1899.		During the week ending 17th February 1899.		Previously reported for period from 12th August 1898 to 10th Feb. 1899.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
	BANGALORE DISTRICT.								
	Bangalore Taluk.								
	Kengeri ...	4	4	3	3	86	82	93	89
	Vartur ...	1	1	2	2	66	65	69	68
	Yelahanka ...	3	3	2	2	188	188	193	193
	Koramangala ...	...	...	3	3	25	25	28	28
	Baiyanapalya ...	4	4	3	3	5	5	12	12
	Mattigere ...	...	...	2	2	3	3	5	5
	Chattupalya ...	1	1	5	5	19	19	25	25
	Nainappan Setti Palya ...	1	1	...	...	2	2	3	3
	Baipanhalli ...	1	1	...	...	1	1	2	2
	Bairasandra ...	...	...	2	2	10	8	12	10
	Madivala ...	3	3	...	...	*12	12	15	15
	Ejipur ...	1	1	...	...	...	...	1	1
	Mailasandra ...	1	1	...	...	...	...	1	1
	Hoskote Taluk.								
	Hoskote Town ...	4	1	3	3	278	263	285	267
	Herandhalli ...	...	...	1	1	...	...	1	1
	Ennegunte ...	...	...	5	5	...	...	5	5
	Katam Nallur ...	...	...	1	1	...	...	1	1
	Lakkondhalli ...	5	4	...	...	...	...	5	4
	Kadgodi ...	2	2	...	...	†11	12	13	14
	Khaji Somanhalli ...	1	1	...	...	..	...	1	1
	Doddballapur Taluk.								
	Doddballapur Town ...	2	2	3	3	262	254	267	259
	Banavati ...	1	1	2	2	...	...	3	3
	Meddahalli ...	...	...	4	4	...	...	4	4
	Seekote ...	3	3	...	...	...	...	3	3
	Nelamangala Taluk.								
	Nelamangala Town ...	10	13	12	10	151	119	173	142
	Doddabyalakere ...	...	...	13	13	...	...	13	13
	Hotteppanpalya ...	7	5	2	2	...	...	9	7
	Kankanhalli Taluk.								
	Harohalli ...	1	3	6	4	78	54	85	61
	Kantaiyanpalya ...	...	...	2	1	2	2	4	3
	Somanhalli ...	...	3	5	3	6	5	11	11
	Maralavadi ...	1	...	...	...	...	...	1	...
	Pataraddipalya ...	2	...	...	...	...	...	2	...
	Magadi Taluk.								
	Magadi Town ...	2	2	6	5	158	148	166	155
	Vitlapur ...	1	2	2	..	..	...	3	2
	Mallur ...	1	1	...	...	...	...	1	1
	Closepet Sub-Taluk.								
	Closepet Town ..	2	2	4	4	7	13	13	19
	Kotakyanaballi ...	7	4	...	...	...	...	7	4
	Kodiyal ...	1	1	...	...	...	...	1	1

* *Vide* statement for week ending 3rd February 1899.

† *Vide* statement for week ending 27th January 1899.

Supplementary Statement of Plague Cases, &c.,—*contd.*

Population in 1891.	Places.	During the week ending 24th February 1899.		During the week ending 17th February 1899.		Previously reported for period from 12th August 1898 to 10th Feb. 1899.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
	BANGALORE DISTRICT *(Concluded)*.								
	Channapatna Taluk.								
	Channapatna Town ...	7	7	1	1	700	698	708	706
	Sunnaghatta	1	1	...	...	3	3	4	4
	Kothanahalli	1	1	1	1	...	...	2	2
	Tagachikere ...	6	6	...	...	*1	1	7	7
	Hottegan Hosahalli ...	2	2	...	...	...	...	2	2
	Thatagere ...	1	1	...	...	...	...	1	1
	Anekal Taluk.								
	Anekal Town ...	15	14	32	22	543	468	590	504
	Attibele	1	...	2	1	14	10	17	11
	Bhutanhalli	...	...	...	3	10	4	10	7
	Kharpur	2	2	...	...	†1	1	3	3
	Hosahalli	1	1	...	...	...	...	1	1
	Devanhalli Taluk.								
	Devanhalli Town ...	2	2	...	...	117	116	119	118
	Sasethanalli	...	...	1	1	1	1	2	2
	Kodagukki	2	2	4	4	...	...	6	6
	Mettu Bandadinne	...	...	1	1	...	...	1	1
	Arlurdine	1	1	...	...	...	...	1	1
	Other places ...	...	...	...	..	1,586	1,339	1,586	1,339
	Total ...	115	110	135	117	4,846	3,921	4,596	4,148
	KOLAR DISTRICT.								
	Kolar Taluk.								
	Kolar Town ...	3	1	...	...	14	7	17	8
	Bowringpet Taluk.								
	Bowringpet Town ..	‡1	1	...	...	4	4	5	5
	Venkatapur	‡1	...	...	...	...	...	1	...
	Gold Fields.								
	Champion Reefs	4	3	...	1	5	1	9	5
	Marikuppam	5	4	10	8	16	12	31	24
	Mysore Mine	11	5	5	4	2	2	18	11
	Ooregum Village	4	1	...	...	4	3	8	4
	Police lines, Ooregum Camp ...	...	...	1	1	1	1	2	2
	Balaghat	1	...	...	...	5	2	6	2
	Masikam	...	...	‡1	1	...	...	1	1
	Plague Hospital	1	6	...	..	...	...	1	6
	Ooregum Camp	1	1	...	...	...	...	1	1
	Nine Reefs	3	...	...	...	...	...	3	...
	Krishnagiri Camp	2	1	...	...	...	...	2	1
	Mulbagal Taluk.								
	Mulbagal Town ...	‡2	2	‡1	...	4	4	7	6
	Urukunta Majara Kottur ...	‡1	1	...	...	...	...	1	1

* *Vide* statement for week ending 10th February 1899.
† *Vide* statement for week ending 20th January 1899.
‡ Imported.

Supplementary Statement of Plague Cases, &c.—*contd.*

Population in 1891.	Places.	During the week ending 24th February 1899.		During the week ending 17th February 1899.		Previously reported for period from 12th August 1898 to 10th Feb. 1899.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
	KOLAR DISTRICT—*concld.*								
	Sidlaghatta Taluk.								
	Sidlaghatta Town ...	...	...	3	3	5	4	8	7
	Chikballapur Taluk.								
	Chikballapur Town ...	15	10	12	11	304	309	331	330
	Manchanbele ...	...	...	2	1	4	4	6	5
	Mushtur ...	...	...	1	1	4	4	5	5
	Ganganmidde ...	...	...	2	1	11	5	13	6
	Arsalbande ...	1	1	...	3	3	...	4	4
	Dibbur ...	1	1	1	2	9	7	11	10
	Nandi ...	2	4	15	7	...	...	17	11
	Puttabhimarhalli ...	2	2	...	...	...	...	2	2
	Goribidnur Taluk.								
	Hosur ...	2	2	1	1	23	18	26	21
	Kunta Chikkanhalli ...	1	1	3	...	10	8	13	9
	Hale Upparhalli ...	1	...	1	2	3	2	5	4
	Narasaiyanpalya ...	...	...	2	1	2	...	4	1
	Herebidinur ...	..	...	1	...	3	2	4	2
	Mullasandra ...	...	...	1	1	...	...	1	1
	Kadirenhalli ...	3	1	...	...	..	...	3	1
	Kalludi ...	1	1	1	...	...	...	2	1
	Devarhoshalli ...	2	...	...	...	†2	2	4	2
	Malur Taluk.								
	Malur Town ...	...	...	1	1	212	179	213	180
	Lakkur ...	...	...	...	1	3	2	3	3
	Mailandhalli ...	*1	1	...	...	...	...	1	1
	Other places ...	...	...	...	...	203	187	203	187
	Total ...	$72	50	64	51	856	769	992	870
	TUMKUR DISTRICT.								
	Tumkur Taluk.								
	Tumkur Town ...	2	...	...	...	390	296	392	296
	Palya or Agrahar ...	4	2	1	2	35	25	40	29
	Lakshmisandra ...	2	1	2	3	5	3	9	7
	Gulur ...	1	4	5	2	34	28	40	34
	Mavinkunte ...	...	...	1	3	6	4	7	7
	Agalakote ...	...	...	1	1	2	...	3	1
	Hethenhalli ...	...	...	6	6	...	...	6	6
	Kalhalli ...	...	...	*1	1	3	3	4	4
	Kuchangi ...	4	2	...	...	6	6	10	8
	Settihalli ...	1	1	...	..	‡13	7	14	8
	Rastepalya ...	1	1	...	...	...	...	1	1
	Maddagiri Taluk.								
	Kaldevipura ...	...	...	4	7	5	2	9	9
	Other places ...	...	...	...	...	388	289	388	289
	Total ...	15	11	21	25	887	663	923	699

*Imported.

†*Vide* statement for week ending 27th January 1899.

‡*Vide* statement for week ending 10th February 1899.

$ This includes 8 days' figures except for Bowringpet taluk including Gold Fields.

Supplementary Statement of Plague Cases, &c. —*concluded.*

Population in 1891.	Places.	During the week ending 24th February 1899.		During the week ending 17th February 1899.		Previously reported for period from 12th August 1898 to 10th February 1899.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
	MYSORE DISTRICT.								
	Mysore Taluk.								
	Kumbar Koppal	1	1	3	...	13	12	17	13
	Ramanhalli	4	2	20	22	6	4	30	28
	Tansikoppal	...	2	18	11	..	..	18	13
	Varuna	8	6	8	4	...	...	16	10
	Siddalingapura	1	1	...	...	...	...	1	1
	Kyatabianhalli	*1	1	...	...	...	...	1	1
	Ganangur Hundi	2	...	...	...	...	...	2	...
	Seringapatam Taluk.								
	Ganjam ...	5	4	11	12	40	28	56	44
	Seringapatam Town ...	...	1	2	...	7	4	9	5
	Hullukere ...	1	...	3	3	...	...	4	3
	Chandagal	5	3	...	...	...	...	5	3
	Belagola	*1	..	...	...	...	...	1	...
	Hunsur Taluk.								
	Belikere	3	...	...	...	†1	1	4	1
	Mandya Taluk.								
	Congabornahalli	1	1	..	...	...	...	1	1
	Other places	...	...	...	...	173	143	173	143
	Total ...	33	22	65	52	240	192	338	266
	HASSAN DISTRICT.	...	...	...	...	2	1	2	1
	SHIMOGA DISTRICT.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.
	KADUR DISTRICT.	...	...	...	..	6	5	6	5
	CHITALDRUG DISTRICT.	...	...	...	...	6	4		4

* Imported. | †*Vide* statement for week ending 27th January 1899.

Statement showing the Population of the Bangalore City for the week ending Friday the 24th February 1899.

WARDS.	Number remaining at the close of the previous week, Inoculated.				Arrivals during the week ending 24th February 1899, Inoculated.				Births during the week.	Total Inoculated.				Number of departures during the week ending 24th February 1899, Inoculated.				Number of deaths during the week ending 24th February 1899, Inoculated.				Number remaining at the close of the week ending 24th February 1899, Inoculated.				Difference.		Net Increase.
	Once.	Often.	Not.	Total.	Once.	Often.	Not.	Total.		Once.	Often.	Not.	Total	Once.	Often.	Not.	Total.	Once.	Often.	Not.	Total.	Once.	Often.	Not.	Total	Increase.	Decrease.	
Ward No. I ...	2,559	78	5,893	8,530	272	...	118	390	3	2,831	78	6,014	8,023	146	...	47	193	...	...	2	2	2,685	78	5,965	8,728	198	...	...
Central Jail ...	350	562	2	914	...	...	17	17	...	350	562	19	931	12	10	4	26	...	...	...	...	353	552	...	905	...	9	...
Lunatic Asylum ...	7	233	12	252	...	...	3	3	...	...	233	15	255	...	1	1	2	...	...	...	...	7	232	14	253	1	...	...
Railway premises	91	9	420	520	...	...	...	...	...	9	9	420	520	...	...	...	...	...	...	...	...	91	9	420	520	...	...	...
Sub-Ward No. 1 ...	2,985	91	1,780	4,856	50	2	21	72	...	3,035	93	1,801	4,929	45	1	66	112	...	...	6	6	2,990	92	1,729	4,811	...	45	...
Imperial Service Regiment ...	...	...	...	1,895	...	...	...	...	...	...	...	...	1,895	...	...	...	...	...	...	...	...	...	...	...	1,895	...	...	...
Ward No. II ...	3,148	200	6,288	9,636	264	3	278	545	5	3,412	203	6,571	10,186	58	1	71	130	1	...	9	10	3,353	202	6,491	10,046	410	...	...
Sub-Ward No. II ...	2,138	281	3,067	5,456	81	2	84	167	4	2,219	283	3,155	5,657	73	4	66	148	...	...	...	..	2,141	279	3,089	5,509	23	...	...
Ward No. III ...	3,842	308	3,902	8,052	268	4	131	403	5	4,110	312	4,045	8,467	46	6	36	88	...	...	4	4	4,064	306	4,005	8,375	316	...	...
Ward No. IV ...	3,101	326	8,584	12,011	162	...	92	254	4	3,263	326	8,680	12,269	51	....	53	104	1	...	5	6	3,211	326	8,622	12,159	148	...	...
Total ...	18,221	2,088	29,955	52,159	1,097	11	744	1,852	21	19,318	2,099	30,720	54,032	436	23	344	803	2	...	26	28	18,895	2,076	30,335	53,201	1,096	54	1042

Net increase 609

Supplementary Statement showing in detail the places in the Mofussil where Indigenous Plague cases and deaths were reported in daily returns to Bombay Government during the week ending 24th February 1899.

Population in 1891.	Places.	Reported in daily returns during the week ending 24th February 1899.		Reported in daily returns during the week ending 17th February 1899.		Previously reported and shown in the general statement for period from September 1896 to 10th February 1899.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
	Bombay City ...	942	891	842	712	37,324	32,658	39,10[illegible]	34,261
	Karachi City ...	16	8	17	15	7,472	5,971	7,505	5[illegible]4
	Poona City, including Suburb and Cantonment.	37	30	9	6	9,406	6,991	9,452	7,027
	Satara District.	180	158	171	121	25,186	19,721	25,537	20,000
	Kolaba District.	81	57	37	33	2,455	2,097	2,573	2,187
	Belgam District.	227	180	194	16[illegible]	24,133	18,202	24,5[illegible]4	1[illegible],544
	Dharwar District.	301	244	349	257	37,150	30,189	37,800	30,690
	Bijapur District.	64	62	54	52	2,001	1,597	2,119	1,711
	Kolhapur.	269	199	208	169	14,449	10,741	14,926	11,109
	Baroda Territory.	153	118	125	101	6,463	4,822	6,741	5,041
	Dharwar District.								
26,559	Dharwar—Taluka Dharwar ...	...	...	1	1	1,283	977	1,284	978
5,719	Hebli do ...	2	2	5	5	287	271	294	278
4,208	Aminbhavi do ...	3	3	1	1	131	94	135	98
557	Timapur do ...	...	1	4	3	28	18	32	22
	Tadkode do ...	7	4	5	5	7	5	19	14
769	Jerigwad do ...	10	11	6	7	6	1	22	19
564	Govankop do ...	...	...	2	2	...	...	2	2
1,410	Kottur do ...	9	6	23	17	...	...	32	23
	Maratgi do ...	...	...	1	1	...	...	1	1
	Mandihal do ...	4	2	2	2	...	...	6	4
638	Devarhubli do ...	4	1	...	...	14	11	18	12
1,750	Managundi do ...	5	3	...	...	77	63	82	64
	Kadkol do ...	8	6	...	...	...	...	8	6
378	Yerikop do ...	5	4	...	...	...	...	5	4
782	Marevad do ...	2	2	...	...	35	26	37	28
	Naikbulikatti do ...	1	1	...	...	...	...	1	1
1,137	Hire-Narte—Taluka Hubli ...	4	3	...	...	69	56	73	59
753	Kurdikeri do ...	4	3	5	3	...	...	9	6
23,821	Gadag—Taluka Gadag ...	4	4	46	19	346	231	396	254
1,443	Kadadi do ...	...	1	1	1	360	258	361	260
6,769	Mulgund do ...	...	...	1	...	126	104	127	104
611	Madganur do ...	...	...	2	...	48	40	50	40
1,687	Holiker do ...	...	...	2	...	44	40	46	40
785	Benur do ...	...	...	1	...	24	15	25	15
	Antur do ...	...	1	4	3	18	14	22	18
611	Kirtgeri do ...	...	1	5	2	22	15	27	18
	Mandargi do ...	1	10	11	8	18	13	33	31
479	Govarvad do ...	...	...	2	1	2	2	4	3
	Kanirhal do ...	3	3	5	4	32	25	40	32
1,686	Hulkatti do ...	4	1	1	2	5	2	10	8
323	Chikop do ...	...	2	1	3	6	3	12	[illegible]
2,294	Kotumchigi do ...	12	7	8	7	4	...	24	14

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Supplementary Statement, &c., —*continued.*

Population in 1891.	Places.	Reported in daily returns during the week ending, 24th February 1899.		Reported in daily returns during the week ending 17th February 1899.		Previously reported and shown in the general statement for period from September 1896 to 10th February 1899.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
	Dharwar District—contd.								
	Nagavi—Taluka Gadag ...	4	3	2	3	2	1	8	7
	Chinchli do ...	...	1	5	4	3	2	8	7
2,338	Sartur do ...	...	...	2	1	2	2	4	3
698	Bellhadi do ...	2	2	4	1	4	4	10	7
690	Shugoti do ...	1	...	1	3	6	2	8	5
3,923	Hombal do ...	1	1	4	1	...	...	5	2
974	Kalsapur do ...	...	...	1	...	...	...	1	...
	Hirekop do ...	4	6	5	...	...	...	9	6
	Hatalgeri do ...	6	3	...	...	...	...	6	3
4,705	Bettigeri do ...	8	3	...	...	96	90	104	93
	Kayalkond—Taluka Bankapur ...	...	...	1	2	11	8	12	10
782	Siswinhal do ...	2	2	2	2	12	8	16	12
	Kalos do ...	...	...	5	4	6	5	11	9
	Sankiipur do ...	1	2	3	3	6	4	10	9
	Hulgur do ...	1	2	1	1	16	9	18	12
305	Hanmanhalli do ...	3	1	...	...	...	...	3	1
	Bemkop do ...	4	4	...	...	...	...	4	4
605	Dyvankond—Taluka Kalghatgi...	...	...	...	1	9	7	9	8
1,155	Mukkal do ...	2	...	3	3	7	6	12	9
936	Devikop do ...	1	1	...	...	1	1	2	2
372	Singankop do ...	1	1	2	2	7	6	10	9
	Artihond do ...	...	...	1	1	...	...	1	1
1,066	Dastikop do ...	...	...	2	1	25	17	27	18
	Madkihonihalli do ...	...	...	1	1	1	1	2	2
323	Ast katti do ...	...	...	1	1	1	1	2	2
433	Bisarhalli do ...	2	1	3	2	...	...	5	3
	Dasour do ...	3	3	...	...	...	...	3	3
675	Hullarubi do ...	1	1	...	...	...	...	1	1
	Kenenaikankop do ...	5	3	...	...	...	...	5	3
	Kittur, Taluka Karajigi ...	1	...	...	...	14	10	15	10
8,090	Navalgund—Taluka Navalgund...	2	4	3	3	616	516	621	523
7,975	Annigeri do ...	...	...	3	3	673	669	676	672
5,878	Nargund do ...	6	4	3	3	232	212	241	219
4,146	Morab do ...	1	...	1	1	664	526	666	527
544	Khannur do ...	...	...	1	...	30	25	31	25
1,161	Padesur do ...	2	1	...	1	42	32	44	34
195	Dandur do ...	6	2	1	1	35	29	42	32
2,095	Halikere do ...	3	4	7	4	156	136	165	144
1,049	Kengvad do ...	...	...	2	1	54	37	56	38
523	Adnur do ...	...	...	...	1	43	33	43	34
539	Chilakvad do ...	3	3	3	3	38	30	44	36
816	Sasvehalli do ...	1	...	1	1	92	72	94	73
1,327	Amargol do ...	...	...	...	2	161	125	161	127
1,640	Shirkol do ...	...	...	4	4	62	41	66	45
806	Koudikop do ...	1	1	1	...	54	46	56	47
586	Kurlageri do ...	3	3	1	1	38	28	42	32
2,162	Arakuratti do ...	2	...	...	1	21	18	23	19
	Thiralapur do ...	...	...	1	1	24	21	25	22
	Gamgol do ...	...	...	2	1	8	7	10	8
726	Karlavad do ...	1	1	...	...	14	10	15	11
760	Balarwad do ...	2	2	6	2	6	5	14	9
	Basapur do ...	1	2	4	2	14	10	19	14
	Benhatti do ...	3	2	8	9	25	13	36	24
	Kalkeri do ...	1	1	7	6	9	4	17	11
1,395	Halkusugal do ...	1	1	...	1	2	1	3	3
1,168	Tadhal do ...	1	...	1	1	342	221	344	222
	Jagapur do ...	3	2	1	...	24	15	28	17
	Kalvad do ...	1	2	3	2	...	...	4	4
1,185	Navalli do ...	10	6	5	3	...	...	15	9

29 Supplementary Statement, &c.—*concld.*

Population in 1891.	Places.	Reported in daily returns during the week ending 24th February 1899.		Reported in daily returns during the week ending 17th February 1899.		Previously reported and shown in the general statement for period from September 1896 to 10th February 1899.		Total.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths	Cases.	Deaths.
	Dharwar District—concld.								
	Hunshikatti—Taluka Navalgund.	3	2	...	...	...	...	3	2
	Mugnur do ...	3	1	...	...	...	..	3	1
	Madgunki do ...	1	1	...	...	...	...	1	1
2,659	Belvanki—Taluka Ron ...	...	1	1	...	689	622	690	623
6,418	Ron do ...	...	1	7	6	189	158	196	165
1,721	Kavasgeri do ..	2	2	7	12	87	68	96	82
2,410	Jakli do ...	1	1	8	5	27	22	36	28
442	Krishnapur do ...	1	3	7	4	17	14	25	21
	Savdi do ..	31	30	27	14	50	32	108	76
1,508	Kotbal do ...	18	13	5	3	15	13	38	29
394	Honapur do ...	1	2	6	4	34	17	41	23
	Dyamapur do ...	2	1	9	9	...	...	11	10
	Yavagal do ..	1	1	...	1	560	493	561	495
	Alur do ..	3	2	1	1	...	...	4	3
	Totgatti do ...	4	4	...	...	..	..	4	4
1,317	Hadgalli, Samat Dambal, Taluka Ron.	2	1	...	...	73	55	75	56
1,038	Hadgalli Samat Yavagal, Taluka Ron.	1	...	3	2	94	85	98	87
	Hadgalli Samat Camapal, Taluka Ron.	1	1	...	...	...	...	1	1
603	Yelival, Taluka Hangal ...	10	4	...	...	...	...	10	4
	Other places ...	...	...	...	...	28,230	22,942	28,230	22,942
	Total ..	292	235	344	253	36,764	29,871	37,400	30,359
	Kanara District.								
185	Nyasargi—Taluka Mundgod ...	1	2	4	2	13	6	18	10
	Naudikatta do ...	1	1	...	...	12	12	13	13
604	Naudigadda—Taluka Haliyal ..	..	...	...	...	13	8	13	8
	Haliyal do ...	6	6	9	10	9	5	24	21
642	Janage do ..	...	..	2	1	...	...	2	1
	Other places ...	...	...	...	...	69	45	69	45
	Total ...	8	9	15	13	116	76	139	98

TELEGRAMS.

No. 702, *dated Calcutta, the* 20*th February* 1899.

From His Excellency the Viceroy—To Her Majesty's Secretary of State for India, London.

Following plague seizures and deaths reported from places outside Bombay Presidency since 13th February 1899 :—

Madras Presidency Districts—

Anantapur—51 seizures, 45 deaths.
Bellary—7 seizures, 7 deaths.
North Arcot—59 seizures, 55 deaths.
Salem—40 seizures, 31 deaths.
Kurnool—16 seizures, 14 deaths.

Mysore State—

Bangalore City—1 seizure, 1 death.
Bangalore C. & M. Station—10 seizures, 10 deaths.
Bangalore District—5 seizures, 2 deaths.
Mysore City—281 seizures, 249 deaths.
Mysore District—8 seizures, 2 deaths.
Kolar District—28 seizures, 24 deaths.

Hyderabad State—

Lingsugur District—32 seizures, 22 deaths.
Gulburga District—7 seizures, 5 deaths.

Central Provinces—

Nagpur City—5 cases, of which 2 suspected.

Punjab—

Jullundur District—5 seizures, 4 deaths.
Rajputana—Abu road—1 imported suspected fatal case.
Calcutta—6 seizures, 5 deaths, 2 of which suspected.
No plague reported elsewhere.

Plague.
Research Work.
Professor Lustig's Curative serum.
Foreign Missions and Experts.
Memorandum by Professor Lustig on the measures that have been taken for the preparation of his serum.

General Department (Plague)—No. 1273-P., *Bombay Castle*, 20*th February* 1899.

Memorandum from the Plague Commissioner, No. 282-P.C., dated the 10th February 1899—

Submits a memorandum No. P.—5445, dated the 4th idem, from the Municipal Commissioner for the City of Bombay, forwarding for information the following memorandum by Professor Lustig :—

"1. Having obtained from the Italian Government leave only up to the 10th of February, I must start from Bombay, and I regret it is impossible for me to give my evidence to the Plague Commission.

"2. I beg to forward to the Commissioner a memorandum giving briefly my opinion on the different subjects on which I have been requested to express my views.

"3. Further explanations can be given by my Assistant Dr. Galeotti, Lecturer at the University of Florence, and by my myself by letter, if the Commission find it necessary.

"4. The aim of my coming to Bombay has been to pay a visit to the Laboratory arranged by my Assistants, Drs. Galeotti and Polverini, and to have personal information of the arrangements for the preparation of the curative serum.

"5. I am very pleased to be able to express to the Commissioner that I have found the work of Drs. Galeotti and Polverini, completely satisfactory in every regard, and I should be very glad if the Plague Commission would pay a visit to this Laboratory, and examine the operations for the preparation of the serum, and the experiments for the immunization of horses and other animals.

"6. Now it will be seen, from the several works published by myself and Dr. Galeotti in different and scientific papers, that we had in our researches the object of extracting from the plague bacilli a very active substance of known contribution able to induce in the animals, in which this substance has been injected, a strong local and general reaction, by means of which the serum of the blood of these animals attain specific bactericidal and antitoxic properties.

"7. Our experiments were, in the beginning, performed on animals (rabbits, rats, guinea-pigs, monkeys) and later on (July and August 1897) in Bombay and Poona with a serum prepared in Florence. With this serum we treated 30 patients in different stages of disease, and of these 24 recovered.

"8. In February 1898, I was charged by the Bombay Municipality to prepare serum in the Laboratory at Florence, and to send it here for the treatment of the plague patients in the hospitals of this town.

"9. Every time, before the sending out of the serum, I tested its preventive and curative power on rats, injecting them in the peritoneal cavity with a small quantity of a very

"10. I did not determine the minimum curative doses, because I think that such determinations have no conclusive value, it being impossible to have a standard of the strength of the injected virus.

"11. I can only say with certitude that ⅓ or ½ c. c. of serum was able to save a white rat of 100 grains weight, if the serum not injected under the skin, 2 or 3 hours after the intraperitoneal infection with cultures able to kill rats in 12 to 18 hours.

"12. These experiments show that the serum of the No. 4 horse was the most active and that of the No. 1 horse was the weakest.

"13. The results are in accordance with the experiments made with the same serums on plague patients.

"14. With these experiments the Plague Commission have been acquainted by Dr. Galeotti and by other witnesses who had occasion to examine the treated cases, and it would be useless to report these results.

"15. Now I have found the horses treated by Dr. Galeotti in good condition, and I hope they will give an active serum.

"16. The first essays made by Dr. Galeotti on the rats gave very satisfactory results and these results will be communicated to the Plague Commission together with those of the following experiments by Dr. Galeotti himself.

"17. In accordance with my personal experience on the preparation of the curative serum in general and specially in regard to the preparation of the anti-plague serum, I must say that not all the horses are able to give a serum endued with sufficient curative properties, and that some horses are able to give a good serum, only after a long process of repeated inoculations.

"18. I believe that the strength of the serum prepared, following my method, is due to the presence in the blood of substances elaborated by the cells of the organism of the horses, during the general reaction which follows every inoculation.

"19. When the activity of the serum is in good proportion to the No. 1 strength of these reactions, the horses able to give strong reactions will furnish surely an active serum.

"20. On the contrary, the horses in bad condition of nutrition and in which the material exchange is abnormal, show, after the inoculations, phenomena of impoverishment and torpor, and are not able to give a sufficiently strong serum.

"21 For this reason, it is necessary to keep the horses quiet for some time after the first blood letting and before making the inoculations.

"22. I have requested Dr. Galeotti to give to the Plague Commission the most detailed information about the experiments which will be done on plague patients with the serum of the horses which are now under treatment, and also, in regard to the researches designed, to determine on rats, with the greatest exactness possible, the strength of the serum of every treated horse.

"23. Being requested by the Municipal Commissioner to express my opinion on the importance of rats in the diffusion of the plague, I offer the following :—

'1st. I have performed experiments on hundreds of rats of different races, and living in the most different conditions, and I have found that almost all are able to get plague.

'2nd. Keeping in a cage several infected and non-infected rats, all die in a short time, and in their bodies plague microbes are always to be found.

'3rd. Mixing a virulent plague culture with the food given to some rats, all these generally die from plague, and it is quite common to find the bacilli in their fœces.

'4th. Generally in the infected rats, the microbes enter the blood and with great facility they pass into the urine. Thus this urine becomes a very infectant liquid.

'5th. In 1897, I had occasion to examine at Poona some dead rats found in a granary and in these I found plenty of microbes.

'I investigated also the corn of this granary, but I did not discover any plague microbes in it. Nevertheless, I know that two cooks who ate of this corn died from plague a few days after.

'6th. I believe that the rats represent one of the most important means of diffusion of the disease, because they are able to carry everywhere virulent microbes.

'7th. That the destruction of the rats is one of the most important measures to be taken against the plague. For this purpose poisons can be very useful, and specially would it be useful to provoke amongst the rats another epidemic, with a microbe not virulent to man. For this purpose, I believe that the Laser's microbe would be the best, because it was used with satisfactory results in Cessalia some years ago. I got a culture of this microbe and tried it on white mice, and obtained a culture which was very virulent, but I had not success into the black rats. I know that the same was experienced by Dr. Galeotti, to whom I sent one of my cultures of Laser's microbe. Dr. Galeotti will receive in a short time from Plague another more virulent culture of the same microbe, and will repeat the experiments.'"

Resolution.—The memorandum by Professor Lustig should be printed and copies furnished to the Indian Plague Commission and distributed to the officers and Departments concerned for information.—A. WINGATE, Acting Chief Secretary to Government.

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No. A, Camp Bombay, 27th February 1899.

From the Chemical Examiner and Bacteriologist to the Government of Mysore, to the Senior Surgeon and Sanitary Commissioner with the Government of Mysore.

I have the honor to forward a report on the Bacteriological experiments I conducted on the subject of the underground conditions in the Kolar Gold Mines, being favourable or otherwise for the growth of the Plague Bacillus.

1. From personal observation of the Mysore Mine, I had surmised that ordinary non-spore-bearing Bacteria could not flourish in the soil in large numbers, and my surmise has been verified by the results of the experiments. The two samples of soil found at depths of 1420 and 1620 ft. respectively, in the Mysore Mine, contain four different kinds of Bacilli and no Cocci of the former three are spore-bearing. The remaining non-spore-bearing bacillus is a short, thick, motile one totally unlike the Plague Bacillus and its allies. The absence of Cocci in the soil also shows that delicate non-spore-bearing Bacilli like the Plague microbe, cannot flourish in the underground soil even if accidentally introduced there.

2. The soil on which the Coolie lines on the Ooregum Mine, are built was also examined. It contains a large number of Bacilli and Cocci, and appears to be a good medium for the growth and propagation of the Plague Bacillus.

3. Two kinds of cockroaches were pointed out to me, a milk-white variety supposed to excrete an acrid matter, and the ordinary dark-brown harmless one. Living specimens of both kinds were taken. After a few hours' day-light, the white colour gradually disappeared, giving place to the usual dark-brown tint. On the second day the two varieties could not be distinguished from each other except by their size. Perhaps the milk-white creature is only an earlier and younger form of the ordinary large and dark-brown one. Some cockroaches were inoculated with the Plague Bacillus, and others fed upon organic matter infected with the Plague Bacillus. The inoculated ones died two days after inoculation, and the latter are still alive, and seem to be none the worse for their infected meal. From the dead cockroaches, however, no Plague Bacillus could be obtained, and their death is attributed merely to there being no moisture in the bottles in which they were confined. I see no reason to apprehend that the cockroaches will be any source of danger even if the mines become infected with the Plague microbe. They tend on the other hand, by devouring any kind of organic matter that may happen to be in the mines, to lessen the chances of an unlimited propagation of the Plague Bacillus.

4. The "Cyanide tailings" examined, showed no Bacteria. When articially infected with the Plague microbe and examined it was found that all the Plague Bacillus had died out on the second day. This, in my opinion, is due to the absence of any organic matter which the Bacilli could live upon. I would suggest that either "Cyanide tailings" or even the ordinary pulverished rock be freely sprinkled in the mines and frequently renewed, as any organic matter that may happen to be introduced underground will be covered up and the chances of mines getting infected will be vastly lessened

5. Pure cultures of the Plague Bacillus were exposed for 5, 10 and 15 minutes with fumes given off by blasting gelatine as well as the fumes formed by exploding dynamite. In neither case was any effect produced on the vitality of the Plague Bacillus, which continued to grow as well after the exposure as before it. But too much weight cannot be attached to these results as the experiments were not performed under natural conditions and the periods of exposure were possibly not sufficiently prolonged.

6. The underground darkness and moisture which undoubtedly are favourable to the growth of all Bacteria, are, so far as I can judge, amply compensated for, by the comparative scarcity of organic matter and the excellent ventilation maintained in the mine visited. The likelihood of such a mine becoming infected with the Plague microbe is very little, and the chances of the infection remaining for any length of time are still less.

Note by the Senior Surgeon and Sanitary Commissioner with the Government of Mysore.

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The report of the Government Bacteriologist confirms the opinion that he and I formed, when we visited the Mysore Mine, and though absolute reliance cannot be placed on these experiments, I am of opinion that with strict sanitary measures below ground and free ventilation, the chances of their becoming infected are small. I fear all the mines are not so well ventilated, and possibly the arrangements are not quite so good as in Mysore. Where this is the case, every endeavour should be made to improve these two very important sanitary measures.

V. P. MADHAVA RAO, *Plague Comr. in Mysore.*

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